Appendix B: Best Management Practices

Table 1 Region 5 Best Management Practices

BMP Number	BMP Practice	BMP Objective	Project BMPs
12.12 Timber Management Best Management Practices			
1-1	Timber Sale Planning Process	To incorporate water quality and hydrologic considerations into the TSPP.	EIS Design Criteria: • RCAs: 1 through 10 • Roads and Trails: 3 • Soils 1 through 7 TSC FSH 2409.13, Chap. 21-41 R-5 FSH 2409.26, Section 13
1-2	Timber Harvest Unit Design	To ensure that timber harvest unit design will secure favorable conditions of water quality and quantity while maintaining desirable stream channel characteristics and watershed conditions. The design should consider the size and distribution of natural structures (snag and down logs) as a means of preventing erosion and sedimentation.	TSC Prov. C6.601 – R5 TSC Prov. C6.602 – R5 TSC Prov. C6.63 – R5 R5 Soil Quality Standards
1-3	Determination of Surface Erosion Hazard for Timber Harvest Unit Design	To identify high erosion hazard areas in order to adjust treatment measures to prevent downstream water quality degradation.	EHR analysis: Soil Specialist Report (Nicita, 2013) EIS Design Criteria • Soil 1,2, 5, 6, and 7
1-4	Use of Sale Area Maps (SAM) and/or Project Maps for Designating Water Quality Protection Needs	To ensure recognition and protection of areas related to water quality protection delineated on a SAM or Project Map.	TSC Prov. B1.1 TSC Prov. B6.5 TSC Prov. B6.6 TSC Prov. C6.5 TSC Prov. C6.6 TSC FS2400-3 Standard Provisions 1 and 11
1-5	Limiting the Operating Period of Timber Sale Activities	To ensure that the purchasers conduct their operations, including, erosion control work, road maintenance, and so forth, in a timely manner, within the time specified in the Timber Sale Contract.	TSC Prov. B6.31.5 TSC Prov. B6.31 TSC Prov. B6.6 TSC Prov. C6.65 TSC Prov. C6.3 TSC Prov. 6.313 TSC FS2400-3 Standard Provisions 1 and 11

BMP Number	BMP Practice	BMP Objective	Project BMPs
1-6	Protection of Unstable Lands	To provide special treatment of unstable areas to avoid triggering mass slope failure with resultant erosion and sedimentation.	N/A: No activities will occur in areas with identified unstable areas. Although areas were identified, activities were excluded in the project design process.
1-7	Prescribing the Size and Shape of Regeneration Harvest Units	To control the physical size and shape of regeneration harvest units as a means of preventing erosion and sedimentation.	Layout of regeneration areas in unit 324-29 considered size and shape of regeneration to prevent erosion and sedimentation.
1-8	Streamside Management Zone Designation	To designate a zone along riparian areas, streams and wetlands that will minimize potential for adverse effects from adjacent management activities. Management activities within these zones are designed to improve riparian values.	EIS Design Criteria: • RCAs: 1 through 5 TSC 2400-3 Standard Provision 11 TSC Prov. C5.421 TSC Prov. 6.411 TSC Prov. C6.5 R5 FSH 2409.26 Sec. 12 and 13 R5 FSH 2409.15, Sec. 61.51
1-9	Determining Tractor Loggable Ground	To minimize erosion and sedimentation resulting from ground disturbance of tractor logging systems.	Slope limitations and buffers. FSH 2509.15 Soil Specialist Report (Nicita 2013)
1-10	Tractor Skidding Design	By designing skidding patterns to best fit the terrain, the volume, velocity, concentration, and direction of runoff water can be controlled in a manner that will minimize erosion and sedimentation.	R-5 FSH 2409.15 sections 51 R-5 FSH 2409.15, Sec 61.42 TSC Prov. B6.42 TSC Prov. B6.424 TSC Prov. C6.41 TSC Prov. C6.422 TSC Prov. C6.424 Provisions
1-11	Suspended Log Yarding in Timber Harvesting	1. To protect the soil mantle from excessive disturbance. 2. To maintain the integrity of the SMZ and other sensitive watershed areas. 3. To control erosion on cable corridors.	R-5 FSH 2409.15 sections 51, 61.42 TSC Prov. B6.42 TSC Prov. C6.425 TSC Prov. C6.427 TSC Prov. C6.429 TSC 2400-3 Standard Provision 1 and special provisions approved for specific sales.

BMP Number	BMP Practice	BMP Objective	Project BMPs
1-12	Log Landing Location	To locate new landings or reuse old landings in such a way as to avoid watershed impacts and associated water quality degradation.	R-5 FSH 2409.15 sections 61.42 EIS Design Criteria: • RCAs: 1 TSC Prov. B6.42 TSC Prov. C6.63 TSC Prov. C9.2 OSHA Regulations TSC 2400-3 Special Provisions
1-13	Erosion Prevention and Control Measures During Timber Sale Operations	To ensure that the purchasers' operations will be conducted reasonably to minimize soil erosion.	R-5 FSH 2409.15 sections 61.41 and 61.42 TSC Prov. B4.225 TSC Prov. C6.6 TSC Prov. C6.422 TSC 2400-3, Special Provisions 10
1-14	Special Erosion-prevention Measures on Disturbed Land	To provide appropriate erosion and sedimentation protection for disturbed areas	EIS Design Criteria: • Soil: 5 to control erosion on ripped skid trail and landings. No other special soil stabilization problems were identified. R-5 FSH 2409.15 sections 6.42 FSH 2509.11 TSC Prov. B6.6 TSC Prov C6.6 TSC Prov. C6.602-R5 TSC 2400-3 Special Provisions 9 & 10
1-15	Revegetation of Areas Disturbed by Harvest Activities	To establish a vegetative ground cover on disturbed sites to prevent erosion and sedimentation.	N/A: Severely disturbed ground needing vegetative recovery is not expected.
1-16	Log Landing Erosion Control	To reduce the impacts of erosion and subsequent sedimentation associated with log landings by use of mitigating measures.	R-5 FSH 2409.15 section 51 TSC Prov. B6.422 TSC Prov. B6.6 TSC Prov. B6.63 TSC Prov. C6.428 TSC Prov. 6.6 TSC Prov. C6.601.R5 TSC Prov. C6.602. R5 TSC Prov. C6.63 TSC 2400-3, Special Provisions 10 & 12

BMP Number	BMP Practice	BMP Objective	Project BMPs
1-17	Erosion Control on Skid Trails	To protect water quality by minimizing erosion and sedimentation derived from skid trails.	EIS Design Criteria: • Soil: 5 to control erosion on ripped skid trail and landings. R-5 FSH 2409.15 sections 51.46 and 61.42 TSC Prov. B6.6 TSC Prov. B6.66 TSC Prov. C6.601.R5 TSC Prov. C6.64 TSC 2400-3, Special Provisions 10
1-18	Meadow Protection During Timber Harvesting	To avoid damage to the ground cover, soil, and the hydrologic function of meadows.	N/A: No activities will occur in identified meadows and fens.
1-19	Streamcourse and Aquatic Protection	1) To conduct management actions within these areas in a manner that maintains or improves riparian and aquatic values. 2) To provide unobstructed passage of stormflows. 3) To control sediment and other pollutants entering streamcourses. 4) To restore the natural course of any stream as soon as practicable, where diversion of the stream has resulted from timber management activities.	EIS Design Criteria: • RCAs: 1 through 5 R-5 FSH 2409.15 sections 51.54 and 61 R-5 FSH 2409.26, Sec. 13 R-5 FSH 2509.22, Chap. 30 TSC Prov. B6.5 TSC Prov. B6.6 TSC Prov. C6.427 TSC Prov. C6.5 TSC Prov. C6.6 TSC 2400-3, Special Provision 11
1-20	Erosion Control Structure Maintenance	To ensure that constructed erosion control structures are stabilized and working.	TSC Prov. B4.225 TSC Prov. B6.6 TSC Prov. B6.66 TSC Prov. B2400-3, Special Provision 9

BMP Number	BMP Practice	BMP Objective	Project BMPs
1-21	Acceptance of Timber Sale Erosion Control Measures Before Sale Closure	To ensure the adequacy of required erosion control work on timber sales.	R-5 FSH 2409.15 sections 15, 51. 54 and 61 TSC Prov. B6.6 TSC Prov. B6.63 TSC Prov. B6.64 TSC Prov. B6.65 TSC Prov. B6.66 TSC Prov. C6.601 TSC Prov. C6.602 TSC Prov. C6.603 TSC Prov. C6.6 TSC Prov. C6.63 TSC Prov. B2400-3, Special Provision 9
1-22	Slash Treatment in Sensitive Areas	To maintain or improve water quality by protecting sensitive areas from degradation which would likely result from using mechanized equipment for slash disposal.	RCO Analysis for exclusion of slash disposal in sensitive areas R5 FSH 2409.15 Sec. 61.5 R5 FSH 2409.15, Sec.15 FSM 1950 TSC Prov. C6.7 TSC Prov. C6.73 TSC Prov. C6.76 TSC Prov. C6.77 TSC Prov. C6.78 TSC 2400-3. Prov. 7&11
1-23	Five-Year Reforestation Requirement	To assure a continuous forest cover and to limit disturbance on areas with limited regeneration potential where there is no assurance that the site can be reforested within the timeframe.	FSH 2409.13, Chap. 21 and 42 FSH 2409.26, Sec. 12 & 13 FSM 2470.3 TSPP
1-24	Non-recurring “C” Provisions that can be used for Water-quality Protection	To use the option of inserting Special “C” provisions in the timber sale contract to protect water quality where standard “B” or “C” provisions do not apply or are inadequate to protect watershed values.	N/A
1-25	Modification of the Timber Sale Contract	To modify the TSC if new circumstances, or conditions indicate that the timber sale will damage soil, water, or watershed values.	TSC Prov. B8.3 TSC Prov. C8.2 TSC Prov. C8.3 CFR 223.113 CFR 223.116 TSC 2400-3, Prov. 3, 18 and 41
12.22 Road and Building Site Construction Best Management Practices			

BMP Number	BMP Practice	BMP Objective	Project BMPs
2-1	Travel Management Planning and Analysis	Roads impact water quality to varying degrees. Use the travel analysis and road management planning processes to develop measures to avoid, minimize, and mitigate adverse impacts to water, aquatic, and riparian resources during road management activities, contribute toward restoration of water quality where needed, and identify the road system which can be effectively maintained.	During field surveys, roads causing environmental degradation were identified. A Transportation analysis for this project was completed as part of the Transportation Report (Errington 2013). A review and design of roads for installation and repair of water drainage features, culvert replacement and cleaning and road resurfacing activities is completed as part of the road engineering package and is included in the Timber Sale Contract.
2-2	General Guidelines for the Location and Design of Roads	Locate roads to minimize problems and risks to water; aquatic, and riparian resources. Incorporate measures that prevent or reduce impacts, through design for construction, reconstruction, and other route system improvements.	Temporary and new roads were identified during the planning process. Roads that could affect aquatic resources were approved during IDT field visits and specialists reports (EIS)
2-3	Road Construction and Reconstruction	Minimize erosion and sediment delivery from roads during road construction or reconstruction, and their related activities.	Road Package FP-03 Sections 105, 107, and 200
2-4	Road Maintenance and Operations	To ensure water-quality protection by providing adequate and appropriate maintenance and by controlling road use and operations.	Timber Sale T800 specifications
2-5	Water Source Development and Utilization	To supply water for road construction, maintenance, dust abatement, fire protection, and other management activities, while protecting and maintaining water quality.	Water sources were evaluated by aquatics biologist (Grasso 2013)
2-6	Road Storage	Ensure that roads placed in storage are maintained to so that drainage facilities and runoff patterns function properly, and damage to adjacent resources is prevented. Stored roads are managed to be returned to service, at various intervals.	FSM 7720 FSH 7709.56, Chap. 10 FP-03 Sections 157, 200, 550, 600 Contract Road Package.

BMP Number	BMP Practice	BMP Objective	Project BMPs
2-7	Road Decommissioning	Stabilize, restore, and vegetate unneeded roads to a more natural state as necessary to protect and enhance NFS lands, resources, and water quality. The end result is that the decommissioned road will not represent a significant impact to water quality by: 1. Reducing erosion from road surfaces and slopes and related sedimentation of streams; 2. Reducing risk of mass failures and subsequent impact on water quality; 3. Restoring natural surface and subsurface drainage patterns; 4. Restoring stream channels at road crossings and where roads run adjacent to	EIS Proposed Action: • Transportation 8 through 10 EIS Design Criteria: • Transportation: 2 and 3
2-8	Stream Crossings	Minimize water, aquatic, and riparian resource disturbances and related sediment production when constructing, reconstructing, or maintaining temporary and permanent water crossings.	FSH 2409.15 EIS Design Critiera • Transportation: 1 Road Package
2-9	Snow Removal and Storage	Prevent or reduce erosion, sedimentation, and chemical pollution that may result from snow removal and storage activities.	N/A
2-10	Parking and Staging Areas	Construct, install, and maintain an appropriate level of drainage and runoff treatment for parking and staging areas to protect water, aquatic, and riparian resources.	FSH 2409.15. Typically landings. Road plan/package
2-11	Equipment Refueling and Servicing	Prevent fuels, lubricants, cleaners, and other harmful materials from discharging into nearby surface waters or infiltrating through soils to contaminate groundwater resources	EIS Appendix D: Standard Operating Procedures. • Riparian Conservation Areas: 6
2-12	Aggregate Borrow Areas	Minimize disturbance to water, aquatic, and riparian resources when developing and using aggregate borrow sites	N/A: No borrow pits will be used in the project area
2-13	Erosion Control Plan	Effectively limit and mitigate erosion and sedimentation from any ground-disturbing activities, through planning prior to commencement of project activity, and through project management and administration during project implementation.	EIS Design Criteria ID Team project design.

BMP Number	BMP Practice	BMP Objective	Project BMPs
12.31- Mining BMPs			No Mining Best Management Practices apply to this Project
12.41 - Recreation BMPs			No Recreation Best Management Practices apply to this project.
12.52 Vegetation Manipulation Best Management Practices			
5-1	Soil-disturbing Treatments on the Contour	To decrease sediment production and stream turbidity, while mechanically treating slopes.	EIS Proposed Action: • Thinning: 1 • Mechanical Operations: 3
5-2	Slope Limitations for Mechanical Equipment Operation	To reduce gully and sheet erosion and associated sediment production by limiting tractor use.	EIS Proposed Action: • Mechanical Operations: 3
5-3	Tractor Operation Limitation in Wetlands and Meadows	To limit turbidity and sediment production resulting from compaction, rutting, runoff concentration, and subsequent erosion by excluding the use of mechanical equipment in wetland and meadows except for the purpose of restoring wetland and meadow function.	N/A: No activities are planned within wetlands or meadows
5-4	Revegetation of Surface-disturbed Areas	To protect water quality by minimizing soil erosion through the stabilizing influence of vegetation foliage and root network.	N/A: No areas of unstable soil were identified that required seeding for stabilization.
5-5	Disposal of Organic Debris	To prevent gully and surface erosion with associated reduction in sediment production and turbidity during and after treatment.	EIS Design Criteria: • Soil: 1-5
5-6	Soil Moisture Limitations for Mechanical Equipment Operations	To prevent compaction, rutting, and gullying, with resultant sediment production and turbidity.	EIS Design Criteria • Mechanical Operations: 6
5-7	Pesticide Use Planning Process	To introduce water quality and hydrologic considerations into the pesticide use planning process.	EIS Proposed stream buffers and Design Criteria: • RCAs: 3
5-8	Pesticide Application According to Label Directions and Applicable Legal Requirements	To avoid water contamination by complying with all label instructions and restrictions for use.	EIS Pesticide Application Requirements FSM 2150 and FSH 2109.14

BMP Number	BMP Practice	BMP Objective	Project BMPs
5-9	Pesticide Application Monitoring and Evaluation	1) To determine whether pesticides have been applied safely, restricted to intended target areas, and have not resulted in unexpected non-target effects. 2) To document and provide early warning of possible hazardous conditions resulting from possible contamination of water or other non-target areas by pesticides. 3) To determine the extent, severity and possible duration of any potential hazard that might exist.	EIS project implementation monitoring. EIS Design Criteria Pesticide Application Requirements: 1 FSH 2109.14
5-10	Pesticide Spill Contingency Planning	To reduce contamination of water by accidental pesticide spills.	EIS Design criteria • Pesticides 4 FSH 2109.14
5-11	Cleaning and Disposal of Pesticide Containers and Equipment	To prevent water contamination resulting from cleaning, or disposal of pesticide containers.	FSH 2109.14 (40)
5-12	Streamside Wet Area Protection During Pesticide Spraying	To minimize the risk of pesticide inadvertently entering waters, or unintentionally altering the riparian area, SMZ, or wetland.	EIS Proposed stream buffers and Design Criteria: • RCAs: 3
5-13	Controlling Pesticide Drift During Spray Application	To minimize the risk of pesticide falling directly into water, or non-target areas.	EIS Herbicide Items b-d
12.62 Fire Suppression and Fuels Best Management Practices			
6-1	Fire and Fuels Management Activities	To reduce public and private losses and environmental impacts which result from wildfires and/or subsequent flooding and erosion by reducing or managing the frequency, intensity, and extent of wildfire.	EIS Purpose and Need: 1
6-2	Consideration of Water Quality in Formulating Fire Prescriptions	To provide for water quality protection while achieving the management objectives through the use of prescribed fire.	EIS Design Criteria: • RCAs: 2 • Soils: 2 and 5
6-3	Protection of Water Quality from Prescribed Burning Effects	To maintain soil productivity, minimize erosion, and minimize ash, sediment, nutrients, and debris from entering water bodies.	EIS Design Criteria: • RCAs: 2 • Soils: 2 and 5 Prescribed Fire: 9
6-4	Minimizing Watershed Damage from Fire-suppression Efforts	To avoid watershed damage in excess of that already caused by the wildfire.	N/A

BMP Number	BMP Practice	BMP Objective	Project BMPs
6-5	Repair or Stabilization of Fire-suppression-related Watershed Damage	To stabilize all areas that have had their erosion potential significantly increased, or their drainage pattern altered by suppression-related activities.	N/A
6-6	Emergency Rehabilitation of Watersheds Following Wildfires	Objective: To minimize as far as practicable: a. Loss of soil and onsite productivity; b. Overland flow, channel obstruction, and instability; and c. Threats to life and property, both on-site and off-site.	N/A
12.72 Watershed Management Best Management Practices			
7-1	Watershed Restoration	To repair degraded watershed conditions, and improve water quality and soil	N/A:
7-2	Conduct Floodplain Hazard Analysis and Evaluation	To avoid, where possible, the long- and short-term adverse impacts to water quality associated with the occupancy and modification of floodplains.	N/A:
7-3	Protection of Wetlands.	To avoid adverse water-quality impacts associated with destruction, disturbance, or modification of wetlands.	N/A: Implementation of activities are not planned in wetlands.
7-4	Forest and Hazardous Substance Spill Prevention Control and Countermeasure (SPCC) Plan	To prevent contamination of waters from accidental spills.	An annual spill plan is maintained for project implementation reference and planning. The SPCC plan is developed and maintained at the Forest Level and is tiered to in the annual spill plan.
7-5	Control of Activities under Special Use Permit	To protect surface and subsurface water quality from physical, chemical, and biological pollutants resulting from activities that are under special use permit.	N/A:
7-6	Water Quality Monitoring	To collect representative water data to determine base line conditions for comparison to established water-quality standards that are related to beneficial uses for that particular watershed.	EIS Monitoring: • Water Quality and Soils

BMP Number	BMP Practice	BMP Objective	Project BMPs
7-7	Management by Closure to Use (Seasonal, Temporary, and Permanent	To exclude activities that could result in damages to either resources or improvements, such as roads and trails, resulting in impaired water quality.	EIS Design Criterial: Roads and Trails 2 and 6
7-8	Cumulative Off-Site Watershed Effects	To protect the identified beneficial uses of water from the combined effects of multiple management activities which individually may not create unacceptable effects but collectively may result in degraded water quality conditions.	Norman and Tolley (2013)
12.81 - Range Management BMPs			No Range Management BMPs are necessary for this project

Table 2 National BMPs applicable to and used in project planning and design

BMP	Objective	Compliance
Plan-1. Forest and Grassland Planning	Use the land management planning and decision making processes to incorporate direction for water quality management consistent with laws, regulation, and policy into land management plans.	Applicable to Land Management Plan. Direction from the Land Management Plan is tiered to in project planning and through Regional BMPs
Plan-2. Project Planning and Analysis	Use the project planning, environmental analysis, and decision making processes to incorporate water quality management BMPs into project design and implementation.	Interdisciplinary team project planning and effects analysis. Analysis of Riparian Conservation Objectives (RCO). Regional BMPs (12.12 1-1; 12.22 2-1 and 2-13; 12.52 5-7)
Plan-3 Aquatic Management Zone Planning	To maintain and improve or restore the condition of land around and adjacent to waterbodies in the context of the environment in which they are located, recognizing their unique values and importance to water quality while implementing land and resource management activities.	RCO analysis and Interdisciplinary team development of proposed action items for improvement of aquatic ecosystems including reduced fire hazard and transportation improvements. Regional BMP 12.12 1-19.
AqEco-1. Aquatic Ecosystem Improvement and Restoration Planning	Reestablish and retain ecological resilience of aquatic ecosystems and associated resources to achieve sustainability and provide a broad range of ecosystem services.	Identification of project activities such as transportation improvements and rehab of areas to improve hydrologic and aquatic functioning. RCO planning and analysis process.

AqEco-2. Operations in Aquatic Ecosystems	Avoid, minimize, or mitigate adverse impacts to water quality when working in aquatic ecosystems.	RCO analysis and Interdisciplinary team development of design criteria to protect aquatic ecosystems. Regional BMP 12.12 1-19.
AqEco-3. Ponds and Wetlands	Design and implement pond and wetlands projects in a manner that increases the potential for success in meeting project objectives and avoids, minimizes, or mitigates adverse effects to soil, water quality, and riparian resources	N/A. Project does not include creation or improvement of a pond or wetland.
AqEco-4. Stream Channels and Shorelines	Design and implement stream channel and lake shoreline projects in a manner that increases the potential for success in meeting project objectives and avoids, minimizes, or mitigates adverse effects to soil, water quality, and riparian resources.	N/A. Project does not include in channel work.
Chem-1. Chemical Use Planning	Use the planning process to develop measures to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from chemical use on NFS lands.	RCO and ID Team involvement in action and design criteria development including nozzle requirements, buffer widths, and chemicals proposed. Project conformance with local, State, Federal, and agency policies, regulations and laws through compliance with Regional BMP 12.52 5-9 and project design elements.
Chem-2. Follow Label Directions	Avoid or minimize the risk of soil and surface water or groundwater contamination by complying with all label instructions and restrictions required for legal use.	Compliance with label requirements is built into compliance with Regional BMP 12.52 5-8 and project design.
Chem-3. Chemical Use Near Waterbodies	Avoid or minimize the risk of chemical delivery to surface water or groundwater when treating areas near waterbodies.	Proximity of application, mixing and storage of chemicals near waterbodies and identification of these areas evaluated and incorporated into the RCO and design criteria. Operation during weather conditions that could increase risk to aquatic and hydrologic resources have be restricted. Regional BMPs 12.52 5-10, and 5-12
Chem-4. Chemical Use in Waterbodies	Avoid, minimize, or mitigate unintended adverse effects to water quality from chemical treatments applied directly to waterbodies.	N/A. Waterbodies are not proposed for treatment under this project.

Chem-5. Chemical Handling and Disposal	Avoid or minimize water and soil contamination when transporting, storing, preparing and mixing chemicals; cleaning application equipment; and cleaning or disposing chemical containers.	Chemical handling and disposal is incorporated in this project through Regional BMP 5-11 compliance and FSH and FSM compliance.
Chem-6. Chemical Application Monitoring and Evaluation	1. Determine whether chemicals have been applied safely, have been restricted to intended targets, and have not resulted in unexpected nontarget effects. 2. Document and provide early warning of possible hazardous conditions resulting from potential contamination of water or other nontarget resources or areas by chemicals.	Monitoring of compliance and safety have been addressed in the design criteria and monitoring elements of the project. Regional BMP 5-9.
Facilities and Nonrecreation Special Uses BMPs (FAC 1-10)	The purpose of this set of Best Management Practices (BMPs) is to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources that may result from development, use, maintenance, and reclamation of facilities located on National Forest System (NFS) lands.	N/A. Facility use and Special Uses are not included in this project.
Fire-1 Wildland Fire Management Planning	Use the fire management planning process to develop measures to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources during wildland fire management activities.	This project is part of a management plan to reduce potential for adverse effects of a wildfire on the landscape and potentially eventually facilitate wildland fire management to some extent.
Fire-2. Use of Prescribed Fire	Avoid, minimize, or mitigate adverse effects of prescribed fire and associated activities on soil, water quality, and riparian resources that may result from excessive soil disturbance as well as inputs of ash, sediment, nutrients, and debris.	Design criteria and project design features including compliance with Regional BMPs 12.62 6-1, 6-2, and 6-3 has been developed to minimize potential for negative effects resulting from prescribed fire implementation.
Fire-3. Wildland Fire Control and Suppression	Avoid or minimize adverse effects to soil, water quality, and riparian resources during fire control and suppression efforts.	Not directly applicable to this project, however with implementation of this project potential for adverse effects from control and suppression of wildfire would be reduced.
Fire-4. Wildland Fire Suppression Damage Rehabilitation	Rehabilitate watershed features and functions damaged by wildland fire control and suppression related activities to avoid, minimize, or mitigate long-term adverse effects to soil, water quality, and riparian resources	N/A. Not a fire rehabilitation project.

Minerals Management Activities (Min-1-8)	The purpose of this set of Best Management Practices (BMPs) is to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources that may result from various mineral exploration, development, operation, and reclamation activities.	N/A. Mineral management is not included in this project.
Rangeland Management Activities (Range-1-3)	The purpose of this set of Best Management Practices (BMPs) is to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources that may result from rangeland management activities.	N/A. Rangeland management is not included in this project except to restrict use where thinning of vegetation may increase accessibility to sensitive areas.
Recreation Management Activities (Rec-1-2 and 4-12)	The purpose of this set of Best Management Practices (BMPs) is to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources that may result from recreation activities.	N/A. Recreation management is not included in this project except to restrict use where thinning of vegetation may increase accessibility to sensitive areas.
Rec-3. Dispersed Use Recreation	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by managing dispersed activities and undeveloped sites to maintain ground cover, maintain soil quality, control runoff, and provide needed sanitary facilities to minimize the discharge of nonpoint source pollutants and maintain streambank and riparian area integrity.	Control and rehabilitation of dispersed recreation sites where use has been identified as resulting in adverse effects to forest resources were included in proposed activities for this project.
Road-1. Travel Management Planning and Analysis	Use the travel management planning and analysis processes to develop measures to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources during road management activities.	Included in the NEPA ID team analysis of the project.
Road-2. Road Location and Design	Locate and design roads to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources.	Design and placement of new roads was evaluated and planned as part of the ID team process for project design. Regional BMP 12.22 2-1.
Road-3. Road Construction and Reconstruction	Avoid or minimize adverse effects to soil, water quality, and riparian resources from erosion, sediment, and other pollutant delivery during road construction or reconstruction.	Compliance with Regional BMP 2-3 and contract road package requirements.
Road-4. Road Operations and Maintenance	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by controlling road use and operations and providing adequate and appropriate maintenance to minimize sediment production and other pollutants during the useful life of the road.	Regional BMP 12.22 2-3. Maintenance and appropriate use of roads used during the project is built into the timber sale and stewardship contracts.

Road-5. Temporary Roads	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from the construction and use of temporary roads.	Temporary road construction, use, and management are dealt with through compliance with contract provisions for timber sale and stewardship projects and FSH 2409.15. Regional BMPs 12.22 2-2, and 2-8
Road-6. Road Storage and Decommissioning	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by storing closed roads not needed for at least 1 year (Intermittent Stored Service) and decommissioning unneeded roads in a hydrologically stable manner to eliminate hydrologic connectivity, restore natural flow patterns, and minimize soil erosion.	Compliance with Regional BMPs (12.22 2-6 and 2-7) and contract provisions for a timber sale or stewardship contract. Additionally opportunities for road decommissioning were reviewed as part of the ID Team planning and project design process.
Road-7. Stream Crossings	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when constructing, reconstructing, or maintaining temporary and permanent waterbody crossings.	ID Team project design and evaluation for road work activities, project design criteria, and compliance with Regional BMP 12.22 2-8.
Road-8. Snow Removal and Storage	Avoid or minimize erosion, sedimentation, and chemical pollution that may result from snow removal and storage activities.	N/A.
Road-9. Parking and Staging Areas	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when constructing and maintaining parking and staging areas.	Compliance with Regional BMP 12.22 2-10. Parking and staging is usually connected to landing development and use or is dealt with in road plans.
Road-10. Equipment Refueling and Servicing	Avoid or minimize adverse effects to soil, water quality, and riparian resources from fuels, lubricants, cleaners, and other harmful materials discharging into nearby surface waters or infiltrating through soils to contaminate groundwater resources during equipment refueling and servicing activities.	Compliance with Regional BMP 12.22-11 and project design features.
Road-11. Road Storm-Damage Surveys	Monitor road conditions following storm events to detect road failures; assess damage or potential damage to waterbodies, riparian resources, and watershed functions; determine the causes of the failures; and identify potential remedial actions at the damaged sites and preventative actions at similar sites.	Monitoring would apply during project implementation until final acceptance of work items and contract and water quality waiver termination.
Veg-1. Vegetation Management Planning	Use the applicable vegetation management planning processes to develop measures to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources during mechanical vegetation treatment activities.	ID team planning process and compliance with Regional BMP 12.12 1-1.

Veg-2. Erosion Prevention and Control	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by implementing measures to control surface erosion, gully formation, mass slope failure, and resulting sediment movement before, during, and after mechanical vegetation treatments.	ID team planning process and Regional BMPs 12.12 1-2, 1-3, 1-6, 1-9, 1-10, 1-12, 1-13, 1-14, 1-15, 1-16, 1-17, 1-20, 1-21; and 12.52 5-1, 5-2, 5-4, and 5-6.
Veg-3. Aquatic Management Zones	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when conducting mechanical vegetation treatment activities in the AMZ.	RCO analysis and Regional BMPs 12.12 1-8, and 1-19; 12-52 5-3, and 5-12
Veg-4. Ground-Based Skidding and Yarding Operations	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources during ground-based skidding and yarding operations by minimizing site disturbance and controlling the introduction of sediment, nutrients, and chemical pollutants to waterbodies.	Regional BMPs 12.12 1-9, 1-10, 1-11, 1-13, 1-17, and 1-20.
Veg-5. Cable and Aerial Yarding Operations	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources during cable and aerial yarding operations by minimizing site disturbance and controlling the introduction of sediment, nutrients, and chemical pollutants to waterbodies.	ID team planning process and evaluation was used to develop design criteria to minimize or mitigate potential adverse effects. Regional BMPs 12.12 and 12.52 FSH 2409.15.
Veg-6. Landings	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from the construction and use of log landings.	Regional BMPs 12.12 1-12 and 1-16
Veg-7. Winter Logging	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from winter logging activities	Regional BMP 12.12 1-5 and 12.52 5-6
Veg-8. Mechanical Site Treatment	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by controlling the introduction of sediment, nutrients, chemical, or other pollutants to waterbodies during mechanical site treatment.	National BMPs Veg-2 and Veg-3 and Regional BMPs 12.12 1-19 and 12.52 5-1, 5-2, 5-3, and 5-4.
Water Uses Management Activities	The purpose of this set of Best Management Practices (BMPs) is to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from development and operation of infrastructure to collect, impound, store, transmit, and distribute water for uses on and off National Forest System (NFS) lands.	N/A. Not a part of this project.